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#3438

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

March 18, 2010

TO: Internal File

THRU: James D. Smith, Permit Supervisor JDS 23/03/10

FROM: April A. Abate, Environmental Scientist II/Hydrologist AAA 3/23/2010

RE: 2009, 4th Quarter Water Monitoring, Savage Services Corporation, Savage Coal Terminal, C/007/0022 Task #3438

The Savage Coal Terminal is an operating coal loadout where coal is crushed, screened, blended, and then loaded onto rail transport. The operation was restarted in 2006 after several years of being in cessation.

Pertinent water monitoring requirement information is in the MRP in Section 731.200.

1. Was data submitted for all of the MRP required sites? YES ☒ NO ☐

Springs –

The Permittee is not required to monitor any springs at the Savage Coal Terminal. There are no springs to monitor.

Streams –

Stream site CV-14-W was monitored during the 4th quarter of 2009. The Permittee is required to sample CV-14-W in the second and fourth quarter of each year.

No flow was reported from stream site: CV-14-W.

Wells–

Groundwater monitoring wells S-1-GW and S-2-GW were monitored this quarter. Monitoring well S-1-GW was dry. The Permittee is required to sample CV-1-W in the second and fourth quarter of each year and quarterly monitoring of S-1-GW and S-2-GW. All of the above wells were monitored this quarter. **Beginning in 2010, all wells will be monitored during the second and forth quarter only.**

UPDES–

There is one active UPDES outfall at the Savage Coal Terminal, CV-15-W, or UTG040005-001. The Permittee is required to monitor this UPDES site monthly under Permit # UTG040005 that is due to expire on April 13, 2013.

The location was monitored monthly during the 4th quarter. The Permittee recorded no flow at the UPDES point during the period.

2. Were all required parameters reported for each site? YES [X] NO [ ]

3. Were any irregularities found in the data? YES [X] NO [ ]

Data from 3rd quarter groundwater monitoring well S-2-GW indicate that elevated levels of total suspended solids (TSS) were noted at a concentration of 316 mg/L. Groundwater data from the 4th quarter sample from monitoring well S-2-GW indicated a drop in the concentration to 69 mg/L. Total iron was reported at a concentration of 6.407 mg/L during the 3rd quarter from well S-2-GW. The concentration from the same well dropped in the 4th quarter to 2.2 mg/L. It does not appear that there is a trend in elevated concentrations from these two water quality parameters.

Select data (shown below in bold/italic) reported from groundwater samples CV-1-W and S-2-GW did not pass standard water quality reliability checks:

Reliability Check	Acceptable Range	CV-1-W	S-2-GW Values
Cation/Anion Balance	<5%	0.24%	***7.20%***
TDS/Conductivity	>0.55 - <0.75	***0.96***	***1.27***
Conductivity/Cations	>90 - <110	66.24	55.34
K/(Na + K)	<20%	1.4%	0.7%
Mg/(Ca + Mg)	<40%	39.6%	38.4%
Ca/(Ca + SO4)	>50%	***10.1%***	***5.4%***
Na/(Na + Cl)	>50%	89.6%	94.2%

This does not mean that something is wrong, just that there may be something usual in the water chemistry of the sample collected.

4. On what date does the MRP require a five-year re-sampling of baseline water data.

The permit renewal was issued on August 6, 2009. Currently there is no specified baseline sampling protocol established in the MRP for the groundwater monitoring wells. However, the Permittee did make the effort of conducting a baseline sampling event during the 4th quarter of 2009 for the site-related monitoring wells. Additional parameters sampled for included:

nitrate, nitrite, selenium (t), boron (t), ammonia, orthophosphate, aluminum (d), arsenic (d), boron (d), cadmium (d), copper (d), lead (d), molybdenum (d), selenium (d), and zinc (d)

Baseline data collected this quarter were compared to previously collected data for the above-mentioned water quality parameters where available. Orthophosphate, nitrate, nitrate and ammonia data were available intermittently between the late 1980s through 1997 from monitoring wells that are no longer active. The table below indicates the minimum, maximum and average concentrations of these constituents from the available historical data collected from that timeframe and the data results from the November 2009 sampling.

	NH3	NO3	NO2	O-PO4
	mg/l	mg/l	mg/l	mg/l
Minimum	**0.09**	**0.01**	**0.23**	**0.04**
Maximum	**4.5**	**90**	**0.3**	**0.31**
Average	**1.08**	**2.43**	**0.27**	**0.19**

Baseline metals data were also compared to one collection date found in June 1989 for select wells. The results indicated that none of the parameters analyzed for exceeded any of the applicable Utah groundwater standards for the samples collected in November 2009.

SITE NAME	SITE DESCRIPTION	DATE	D-As mg/l	D-B mg/l	D-Cd mg/l	D-Cu mg/l	D-Pb mg/l	D-Se mg/l	D-Al mg/l	D-Mo mg/l	D-Zn mg/l
CV-1-W	PUMPHOUSE DRAIN NE CORNER OF PERMIT AREA	11/18/2009	< .01	0.38	< .002	< .01	< .005	< .01	0.16	< .008	<0.005
S-2-GW	WELL SOUTH OF POND 5	11/18/2009	< .01	1.25	< .002	< .01	< .005	< .01	0.24	0.037	<0.005
CV-1-W	PUMPHOUSE DRAIN NE CORNER OF PERMIT AREA	6/27/1989	< .005	1.07	< .002	0.01	< .02	< .005	0.17	< .02	0.1
CV-11-W	NE ADJACENT PROPERTY	6/27/1989	< .005	1.19	< .002	0.03	0.47	< .005	1.87	0.31	0.18
CV-6-W	E CENTRAL PORTION OF PERMIT AREA	6/27/1989	< .005	1.67	< .002	< .01	0.26	< .005	0.89	0.03	-
Utah Groundwater Standards			**0.05**	**NS**	**0.005**	**1.3**	**0.015**	**0.05**	**NS**	**NS**	**5.0**

Note: NS – No state-established standard

5. Based on your review, what further actions, if any, do you recommend?

Currently, the water monitoring plan in the MRP does not have a 5-year commitment to sample baseline parameters. A list of baseline parameters to be sampled on a 5-year basis is a recommended update to Section 731.200 of the MRP. In addition to that, the Division recommends that the table listed on page 80 of the MRP be updated to reflect that all groundwater monitoring wells are now sampled on a biannual basis as of January 2010.

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